## AMENDMENTS TO THE APPLICATION

Page 1, the paragraph beginning on line 4 has been amended as follows:

--The present invention relates to a method [according to the preamble of claim 1] and apparatus for coating webs of paper and board or for surface sizing the same in order to improve their printability, strength or other qualities.--

Page 3, the three paragraphs from line 17 to line 35 have been amended as follows:

-- In [US Pat.] U.S. Patent No. 3,146,159 is described an embodiment in which application is performed on a wet web by coating one side of the web and simultaneously supporting the web during application from its other side by a fabric. Coating on a calibrating press is also described.

[US Pat.] U.S. Patent No. 4,793,899 describes spray-coating and short-dwell application techniques, wherein the web support arrangement is more advanced than that of the above-cited patent, however, not even this embodiment [being] is free from unsupported web travel passages and the applicator still [having] has a web-supporting fabric therein.

[Further referring to US Pat.] U.S. Patent No. 5,152,872, there is described an embodiment free from unsupported web travel passages. In this arrangement, the coating mix is first metered on the outer surfaces of rolls and therefrom directly to the web, yet having a felt running in the nip.--.

Page 6, the paragraph from line 9 to line 26 has been amended as follows:

-- The support belt helps to form a tapering nip between the belt and the web, thus allowing a large amount of surface size to be applied which is advantageous particularly in the manufacture of boxboard. Particularly a shoe press is capable of providing an excellent penetration in the web. Typically a shoe press is also suitable [of being used] for use in the manufacture of grades having a high bulk and/or improved strength of the paper or board web. By way of applying the surface size on a wet paper or board, the number of hydrogen bonds that principally determine the web strength is increased. Also the swelling of fibers that occurs during the wetting of a dry web is eliminated, whereby the web surface quality is improved.

The method according to the invention is suitable for making a great number of paper or board grades with a competitive-edge quality or for producing a base paper of excellent finish for conversion into high-quality coated grades.--.

Page 7, line 24 to page 9, line 25, the two paragraphs have been amended as follows:

--The embodiments shown in FIGS. 1 and 2 are particularly suited for being adapted into a part of the dryer section of a paper- or boardmaking machine when the machine is being rebuilt. In the illustrated embodiment, a coater or surface sizing station is located immediately prior to a dryer cylinder group 1, thus forming an integral part of the press section in the papermaking machine. As the described embodiments are primarily intended to be adapted into the press section during the rebuilding of a papermaking machine, the apparatus will form a part of the press section in the machine. In the embodiment shown in FIG. 1, the web being processed is passed on a felt or wire 2 to the surface sizing/press station. The support element, on which the web is transferred, may be the web-forming wire of the machine or, if the web has already in the preceding steps been dewatered in a press nip, the press felt. The adherence of the web to the support element surface is assured by means of a suction roll 3. From the suction roll, the web is passed to the next support element which is a felt 4. The web transfer from the delivering support element 2 onto the first felt 4 takes place with the help of a suction roll 5. The suction roll 5 presses the first felt 4 against the support element 2, and the vacuum imposed by the roll 5 adheres the web to the felt. The first felt 4 [transport] transports the web to a first dewatering nip formed between the first felt 4, a second felt 6, a second suction roll 7 and a backing roll 8. The second suction roll 7 adheres the web to the first felt 4 and, [resultingly] as a result, the web passes over the suction roll 7 supported by the felt 4. Into this station is also [adapted] positioned a spray applicator S1A [suited] for spraying the surface size on the outwardly oriented surface of the web. Next, the web is passed into a nip formed between the transfer belt 9 and the first felt 4 at a point approximately coincident with the leaving point of the first felt 4 from the perimeter of the second suction [felt] roll 7. The transfer belt 9 is a smooth-surface belt made from a metal, advantageously steel, or from a reinforced/nonreinforced rubber or polymer material. A metal belt can be surfaced with a suitable material such as a ceramic coating, for instance. Also polymeric belts may be covered with a ceramic coating, and they may have a fabric-reinforced backing. The transfer belt 9 moves supported by guide rolls and, in the travel direction of the belt, over a backing roll 10

that is mounted in front of the nip between the first felt 4 and the transfer belt 9. At the backing roll 10, there is adapted an applicator device S1B for spreading the surface size on the belt 9. Advantageously, the applicator device S1B is of the same type used as the applicator unit of film-transfer coaters, whereby the surface size is metered and the size is smoothed on the belt surface by means of a rod or blade.

As is shown in FIG. 1, the applicator devices S1A and S1B can be used alternatively or even simultaneously when a large amount of surface size has to be applied to the same surface of the web. Next, the transfer belt 9 with the web travelling thereon is passed into a nip between a deflecting backing roll 11 and a press roll 12, wherein water is removed from the web toward the first felt 4. The transfer belt 9 with the web running thereon passes over the deflecting backing roll 11. In the illustrated embodiment, a shoe press 13 [adapted to operate] operating against the deflecting backing roll 11 over which a belt or the felt 14 [is adapted to pass] passes. In order to apply surface size to the untreated side of the web, this embodiment has a spray applicator S2 adapted at a point along the web passage between the nip of the press roll 12 and its backing roll 11 and the nip between the shoe press 13 and its backing roll 11. In this arrangement, the first coated side of the web will face the belt 14 that runs over the shoe press 13. If the nip of the shoe press is adapted to have a transfer belt on both sides thereof, no dewatering takes place in the nip, but rather, the press acts as a calender that smooths the web surface.--.

Page 10, line 7 to page 11, line 12, the two paragraphs have been amended as follows:
--In the embodiment shown in the diagram, if the press nip is adapted to operate in conjunction with the wire section, the felt 4 is replaced by a transfer belt, and the roll 5 has no suction facility but instead is advantageously adapted to operate with a backing roll. The coating is metered with the help of a spray applicator in front of the ingoing side of the nip formed between the roll 5 and its backing roll. In slow machines, the web can be passed directly after the press nip between the rolls 7 and 8 to the cylinder dryer section. In this case, the roll 7 is advantageously a shoe roll, while the roll 8 can be a suction roll.

The embodiment shown in FIG. 2 is otherwise similar to that of FIG. 1 with the exception of having the first dewatering nip and felt removed, while a calibrating press is added. In this

embodiment, the spray applicators S1A and S1B may be used alternatively or complementary to each other, and the surface size is applied to the first side of the web by means of an applicator device adapted to operate in conjunction with the transfer belt 9. [Resultingly] As a result, the shoe press 13 can be operated with a felt, thus permitting effective water removal toward the uncoated side of the web, whereby the above-mentioned features of good dewatering from the web and size penetration therein are attained. The calibrating press SN is located downstream from the shoe press and comprises two rolls 20, 21 forming a nip therebetween through which the web and its transfer belt 9 [are adapted to] pass. The first roll 20 is situated on the interior side of the endless loop of the transfer belt, while the second roll 21 is on its exterior side. An applicator device S2B is adapted to cooperate with the roll 21 located on the exterior side of the endless transfer belt, whereby the roll 21 performs as a film-transfer coater in cooperation with the applicator device S2B. In addition to carrying out the surface sizing, the calibrating press helps to improve the web smoothness in a conventional manner. The calibrating press used in this and other embodiments according to the invention described herein may be replaced by a calender proper, whereby generally two pairs of rolls are needed if the calender rolls comprise a heated hard roll and a soft-covered roll, for instance.--.

Page 13, line 17 to page 14, line 1, the paragraph has been amended as follows:

--In FIG. 7 is shown an embodiment in which surface sizing is performed at the web-forming wire section, wherein the first dewatering step is performed. Herein, the solids content of the web is still very low. The web enters the treatment device transported by a dryer wire 2 of the paper- or boardmaking machine. On the dryer wire 2, the web is dewatered and its solids content increases. Still transported by the dryer wire, the web enters the shoe press formed by a shoe roll 40 and a backing roll 41. The dryer wire 2 passes over the backing roll 41 and the transfer belt 39 passes over the shoe roll 40. Thus, the web passes through the shoe press 40, 41 in the nip between the drying wire 2 and the transfer belt 39, whereby the water removal from the web takes place in the direction of the wire 2. In front of the nip formed between the drying wire 2 and the transfer belt 39, there is adapted a spray applicator device 38 suitable for applying a web treatment substance to the web surface. As the web strength due to its high moisture content is low before it enters the shoe press, spray application is a particularly advantageous method of application in this embodiment.--.